

**IN THE CLAIMS:**

1-27. (cancelled)

28. (currently amended) A method for detecting a plurality of CFTR alleles, comprising:

- a) providing a sample comprising CFTR target nucleic acid;
- b) simultaneously amplifying of at least 20 CFTR alleles from said CFTR target nucleic acid wherein said at least 20 CFTR alleles comprise single nucleotide polymorphisms and deletion mutations with 25 cycles or fewer of a polymerase chain reaction to generate said at least 20 amplified-target nucleic acid CFTR alleles; and
- c) exposing said amplified-target nucleic acid at least 20 amplified CFTR alleles to a plurality of detection assays wherein said detection assays comprise invasive cleavage assays configured to detect a plurality of CFTR alleles under conditions such that the presence or absence of said CFTR alleles is detected.

29. (cancelled)

30. (original) The method of Claim 28, wherein said plurality of CFTR alleles comprise thirty or more different CFTR alleles.

31. (original) The method of Claim 28, wherein said polymerase chain reaction is conducted for 20 cycles or less.

32. (original) The method of Claim 28, wherein said polymerase chain reaction is conducted for 17 cycles or fewer.

33. (original) The method of Claim 28, wherein said amplifying is conducted within a single reaction vessel.

34-35. (canceled)

36. (previously presented) The method of Claim 28, wherein said sample comprises a blood sample.

37. (currently amended) A method for detecting a plurality of CFTR alleles in a single reaction vessel, comprising:

- a) providing a sample comprising CFTR target nucleic acid;
- b) simultaneously amplifying, in a single reaction vessel, said target nucleic acid with multiple cycles of a polymerase chain reaction to generate at least 20 amplified ~~target nucleic acid~~ CFTR alleles wherein said at least 20 amplified CFTR alleles comprise single nucleotide polymorphisms and deletion mutations; and
- c) exposing said ~~amplified target nucleic acid~~ at least 20 amplified CFTR alleles, in said single reaction vessel, to at least twenty detection assays wherein said detection assays comprise invasive cleavage assays configured to detect at least twenty different CFTR alleles under conditions such that the presence or absence of said at least twenty different CFTR alleles is detected.

38. (previously presented) The method of Claim 37, wherein said at least twenty CFTR alleles comprises thirty or more different CFTR alleles.

39. (previously presented) The method of Claim 37, wherein said polymerase chain reaction is conducted for 25 cycles or less.

40. (previously presented) The method of Claim 37, wherein said polymerase chain reaction is conducted for 20 cycles or fewer.

41-42. (canceled)

43. (previously presented) The method of Claim 37, wherein said sample comprises a blood sample.

44. (currently amended) A method for detecting a plurality of CFTR alleles in a single reaction vessel, comprising:

- a) providing a sample comprising CFTR target nucleic acid;
- b) simultaneously amplifying, in a single reaction vessel, ~~said~~ at least 20 CFTR target nucleic acid alleles from said CFTR target nucleic acid wherein said at least 20 CFTR alleles comprise single nucleotide polymorphisms and deletion mutations with 25 cycles or fewer of a polymerase chain reaction to generate amplified target nucleic acid; and
- c) exposing said ~~amplified target nucleic acid~~ at least 20 amplified CFTR alleles, in said single reaction vessel, to at least twenty detection assays wherein said detection assays comprise invasive cleavage assays configured to detect at least twenty different CFTR alleles under conditions such that the presence or absence of said at least twenty different CFTR alleles is detected.

45-46. (canceled)

47. (previously presented) The method of Claim 44, wherein said sample comprises a blood sample.